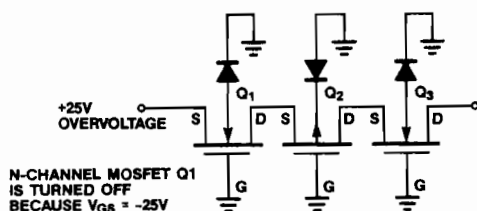
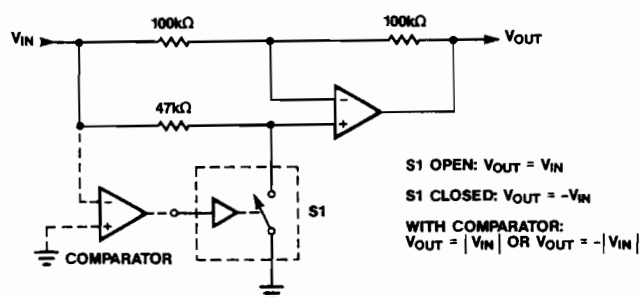


OVERVOLTAGE WITH MULTIPLEXER POWER OFF



MAXIM

PROGRAMMABLE INVERTER/RECTIFIER

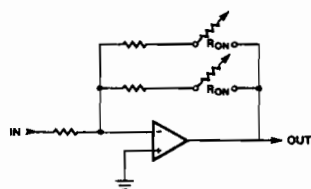


MAXIM

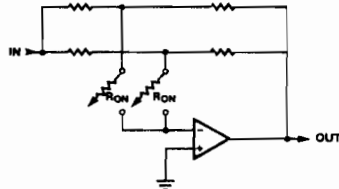
Analog switches can control the functioning of an op-amp. Here the op-amp is alternately an inverter or buffer, under control of the switch polarity. As a buffer, the gain is always 1, but as an inverter, the gain is set by the ratio of the input and feedback resistors. By adding a comparator, the function can be synchronously switched as the input polarity changes, effectively rectifying the output. The output polarity is determined by the switch logic (normally open or normally closed) and the comparator input polarity.

OP AMP GAIN SWITCHING TECHNIQUES

RON IS PART OF GAIN SETTING NETWORK



RON IS OUTSIDE GAIN SETTING NETWORK



MAXIM

Analog switches provide a convenient way to control op-amp gain. In the first of two methods shown here, the switch is placed in series with part of the gain determining network, and the switch on resistance ($R_{DS(on)}$) becomes part of the overall gain. If the resistors are very large, The switch on resistance (and its temperature coefficient) is insignificant. In the right hand diagram, the switches are in series with the op-amp input, so on resistance has no effect on the gain. In this configuration, however, switch leakage and charge injection may contribute to the op-amp's performance.